

NIH Training, Career Development & Research Funding Opportunities

Pennsylvania State University

August 28, 2007

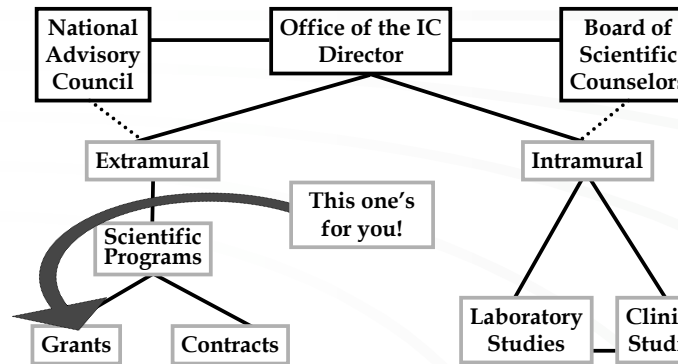
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National Institute of Mental Health



A Typical Institute at the NIH



National Institutes of Health (NIH) Research Training and Career Development Timetable

Career Stage Mechanism of Support

GRADUATE/ MEDICAL STUDENT	<p>Pre-doctoral Institutional Training Grant (T32)</p> <p>Pre-doctoral Individual NRSA (F31)</p> <p>Pre-doctoral Individual MD/PhD NRSA (F30)</p>
POST DOCTORAL	<p>Post-doctoral Institutional Training Grant (T32)</p> <p>Post-doctoral Individual NRSA (F32)</p> <p>Mentored Research Scientist Development Award (K01)</p> <p>Mentored Clinical Scientist Development Award (K08)</p> <p>Mentored Patient-Oriented Research Career Development Award (K23)</p> <p>Mentored Quantitative Research Career Development Award (K25)</p>
EARLY CAREER	<p>Small Grant (R03)</p> <p>Exploratory / Developmental Grant (R21)</p> <p>Research Project Grant (R01)</p>
MIDDLE CAREER	<p>Independent Scientist Award (K02)</p> <p>Mid-career Investigator Award in Patient-Oriented Research (K24)</p>
SENIOR	<p>Institutional Training Grants ("T" series)</p> <p>Research Project Grant (R01)</p> <p>Center and Program Project Grants ("P" series)</p>



Training and Career Development Opportunities at NIH

The F Awards

Ruth L. Kirschstein National Research Service Award (NRSA)

Which Fellowship Award is Right for You?

F30 - MD/PhD Pre-Doctoral Fellowship

F31 - Pre-Doctoral Fellowship

F32 - Post-Doctoral Fellowship

F33 - Senior Fellowship (limited)

Who Can Apply for Fellowship Awards

You must satisfy the following eligibility requirements:

- US citizen or permanent resident
- Enrolled in or accepted into a Ph.D. or M.D./Ph.D. program in biomedical or behavioral sciences (F31 and F30)
- Already have doctoral degree (F32 and F33)

What is provided (F30 & F31)?

Duration: 5 year maximum for predoctoral fellowships

Support: FY07 stipend is \$20,772/yr

- Pays 60% of tuition and fees, up to \$16K/yr or \$21K in dual-degree [MD/PhD] programs
- Institutional allowance (incl. health insurance) \$3100 - 4200/yr
- Trainee travel \$400 - \$1000/yr

Payback: None required

What is provided (F32)?

Duration: 3 year maximum

Support: FY07 stipend ranges from \$36,996 to \$51,036 based on years of experience

- Pays 60% of tuition and fees, up to \$4,500/yr (up to \$16K for additional degree)
- Institutional allowance (incl. health insurance) \$6750 - \$7,850/yr
- Trainee travel \$400 - \$1000/yr

Payback: 12 month commitment to health-related research training, research, or teaching

Where, Who, When, Which ?

Where to send: Center for Scientific Review

Where reviewed: CSR or (occasionally) Institute

Who to fund: Institute

When to send: Apr 8 / Aug 8 / Dec 8

Which Form: PHS Form 416-1 BUT . . .

Training and Career Development Opportunities at NIH

The K Awards

Career Awards in Two Flavors:

Mentored and Non-mentored

Which Mentored Career Award is Right for You?

- **K01** – Mentored Research Scientist Award
- **K08** – Mentored Clinical Scientist Development Award
- **K23** – Mentored Patient-Oriented Research Career Development Award
- **K25** – Mentored Quantitative Research Career Development Award
- **K99/R00** – Mentored Pathway to Independence Award

K01 Mentored Research Scientist Award

Provides further mentored research experience or scientifically trained individuals (PhD, ScD, *etc.*) in a new research area or an area to enhance the PI's scientific career to become an independent scientist in biomedical research

K08 Mentored Clinical Scientist Development Award

Provides mentored research experience for clinically-trained professionals to establish independent career in clinical research

K23 Mentored Patient-Oriented Research Career Development Award

Provides mentored research experience for clinically-trained professionals to establish independent career focusing on patient-oriented clinical research with human subjects (or human tissue or specimen) for which an investigator directly interacts with human subjects, *e.g.*,

- Clinical trials
- Mechanisms of human disease
- Therapeutic interventions
- New technology development

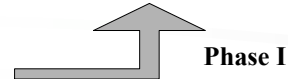
K25 Mentored Quantitative Research Career Development Award

Provides opportunities for scientist with quantitative and/or engineering backgrounds who are committed to establishing careers as independent biomedical or behavioral investigators. Appropriate background include:

Physics	Mathematics	Chemistry
Statistics	Engineering	Informatics
	Computer Science	

K99/R00 Mentored Pathway to Independence Award

U.S. citizens and non-U.S. Citizens are eligible to apply



1-2 years of mentored support for highly promising, postdoctoral research scientists, to complete their supervised research work, publish results, and search for independent research position.
Up to \$90K per year, plus 8% F&A costs

<http://grants1.nih.gov/grants/guide/pa-files/PA-06-133.h>

K99/R00 Mentored Pathway to Independence Award

Phase II

Years 3-5 will allow awardees who secure an assistant professorship, or equivalent position, to establish their own research program and successfully apply for an NIH Investigator-Initiated (R01) grant.
Phase two allows up to \$249K Total Costs per year.

To activate the independent phase, individuals must have been offered and accepted a tenure-track, full time assistant professor position (or equivalent).

Who Can Apply for Mentored Career Awards?

You must satisfy the following eligibility requirements:

- US citizen or permanent resident (*except* K99/R0)
- Research doctoral degree (K01)
- Clinical doctoral degree (K08/K23)
- Quantitative science or engineering doctoral degree (K25)

Who Is Ineligible for Mentored Career Awards?

Different mechanisms, and different Institutes, have very different policies. *For example:*

- Current PI of NIH research grant* (K01)
- Former PI of NIH research grant* (K08/K23/K25)
 - * *But prior R03, R15 or R21 awards are allowed at NIMH!*

Check the Program Announcement!

1

What Are the Review Criteria?

For Fellowship and Mentored Career Awards:

- **Candidate:** Prior research, and academic performance (F's); Potential to independence (both F's and K's)
- **Career Development Plan:** Scientific development
- **Research Plan:** Developing & enhancing research skill Merit of scientific work proposed
- **Mentor:** Qualification of research & training experience
- **Institutional Environment:** Commitment to candidate

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Non-Mentored Career Awards for Mid-Career and Senior Scientists

- K02** Independent Scientist Award
- K07** Academic Career Award
- K24** Midcareer Investigator Award In Patient-Oriented Research

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Non-Mentored Career Awards for Mid-Career and Senior Scientists

- These are salary awards only – they provide salary for buyout to relieve faculty members from teaching and administrative responsibilities, to devote at least 75% of their time to research
- Award amounts and requirements *vary enormously* across Institutes within NIH
- See individual program announcements for details

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What is provided (K Awards)?

Duration:	3 to 5 years
Research Effort:	75% Minimum
Renewability:	Generally Not
Support:	Salary + Research Varies by mechanism and by funding Institute, but typical awards include from \$50 to \$90K for salary, plus up to \$20 to \$50K for research support

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Where, Who, When, Which ?

Where to send:	<u>Center for Scientific Review</u>
Where reviewed:	CSR or Institute
Who to fund:	Institute
When to send:	Feb 12 / June 12 / Oct 12
Which Form:	PHS Form 398 BUT ...

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Where to Get More Information ?

The NIH Center for Scientific Review

<http://www.csr.nih.gov>

The K Kiosk – Information about NIH
Career Development Awards

<http://www.nih.gov/training/careerdevelopmentawards.htm>

The NIH Virtual Career Center

<http://www.training.nih.gov/careers/careercenter/>

Standard Due Dates for Competing Applications

<http://grants.nih.gov/grants/funding/submissionschedule.htm>

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Research Funding Opportunities at NIH

The R Awards

Research Project Grants (RPGs)

These grants are used to support basic and applied biomedical research, usually at universities, medical schools, hospitals and independent research institu

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Which Research Grant is Right for You

R03 – Small Grant

R21 – Exploratory / Developmental Grant

R01 – “Regular” Research Project Grant

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R03 Small Grant

Provides support for new research projects that can be carried out in a short period of time with limited resources e.g., up to 2 modules (\$50,000) for each of two years:

- Pilot or feasibility studies
- Secondary analysis of existing data
- Small, self-contained research projects
- Development of research methodology/technology

The Research Plan may not exceed 10 pages

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R21 Exploratory/Developmental Grant

To encourage new exploratory or developmental research projects, e.g.,

- To assess the feasibility of a novel area or a new system
- Unique and innovative use of an existing methodology to explore a new scientific area
- Up to two years with a combined budget for direct costs up to \$275,000 for the two year period, max \$150K in any y

The Research Plan may not exceed 15 pages

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R01 Research Project Grant

The most commonly used grant mechanism at NIH, for the support of biomedical research in all fields:

- Up to five years of support
- No budget limit; typical awards ~\$200K/year D.C.
- Up to two revisions (-A1, -A2) may be submitted
- Data sharing plan, and prior permission to submit application is required if >\$500K/year D.C.

The Research Plan may not exceed 25 pages

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What is Provided (Research Grants)?

All Legitimate research expenses, such as:

- Partial to full salary support (PI, collaborators, laboratory technicians, *etc.*)
- Stipends for students and postdocs
- Equipment & supplies
- Travel to scientific meetings
- Human subject costs (payments, hospital or research facility fees, *e.g.*, scanner time)
- Animal costs (feeding, housing, veterinary services)
- Publication costs, computer maintenance, software cont

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Where, Who, When, Which ?

Where to send: Center for Scientific Review

Where reviewed: CSR or Institute

Who to fund: Institute

When to send: Feb 5 / June 5 / Oct 5

Which Form: SF424 for Electronic Submission

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Visit the NIH New Investigators Program

New Investigators Program



Each NIH Institute has special programs to award additional R01 applications from new investigators with percentiles beyond the normal payline.

http://grants.nih.gov/grants/new_investigators/index.htm

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<http://www.grants.gov/>



<http://grants.nih.gov/grants/funding/424/>

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Programs of Special Interest for Biomedical Engineering

- BISTI** Biomedical Information Science and Technology Initiative
- BECON** The NIH Bioengineering Consortium
- CRCNS** Collaborative Research in Computational Neuroscience
- NIBIB** National Institute of Biological Imaging and Bioengineering

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National Institutes of Health
Biomedical Information Science and Technology Initiative (BISTI)

[NIGMS Home](#)

[BISTI Home](#)

Bioinformatics at the NIH

BISTI
Home
BISTC
Funding
Charters
Members
News
Calendar
Conferences
Information
Feedback
National Centers
Staff Talks
Compendium
Members Only

Welcome to the NIH Bioinformatics Web Site - Your Source of Information about Biomedical Computing at the National Institutes of Health

This Web Site - The Web site contains information on the [BISTI Consortium](#), bioinformatics [News and Events](#), a [Calendar](#) of related events, biomedical computing [Symposia](#), [Funding Opportunities](#) in bioinformatics, and [General Information](#) about the field.

What is Bioinformatics? - Research, development, or application of computational tools and approaches for expanding the use of biological, medical, behavioral or health data, including those to acquire, store, organize, archive, analyze, or visualize such data.

What is Computational Biology? - The development and application of data-analytical and theoretical methods, mathematical modeling and computational simulation techniques to the study of biological, behavioral, and social systems. ([Working Definition of Bioinformatics and Computational Biology - July 17, 2000](#))

Impact of Bioinformatics at the NIH - As computational capabilities and resources continue to develop, the use of computer science and technology by the biomedical community is increasing. The fusion of biomedicine and computer technology offers substantial benefits to all NIH institutes and centers in support of their general mission of improving the quality of the nation's health by increasing biological knowledge.

<http://www.bisti.nih.gov/>

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National Institutes of Health Bioengineering Consortium

BECON - The Bioengineering Consortium (BECON) is the focus of bioengineering activities at the NIH. The Consortium consists of senior-level representatives from all of the NIH Institutes, centers, and divisions plus representatives of other Federal agencies concerned with biomedical research and development. The BECON is administered by the National Institute of Biomedical Imaging and Bioengineering (NIBIB).

What is Bioengineering? - Bioengineering integrates physical, chemical, mathematical, and computational sciences and engineering principles to study biology, medicine, behavior, and health. It advances fundamental concepts; creates knowledge from the molecular to the organ systems levels; and develops innovative biologics, materials, processes, implants, devices, and informatics approaches for the prevention, diagnosis, and treatment of disease, for patient rehabilitation, and for improving health (NIH Working Definition of Bioengineering - July 24, 1997).

<http://www.becon.nih.gov/becon.htm>

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National Institute of Biomedical Imaging and Bioengineering

NATIONAL INSTITUTES OF HEALTH
U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES

- Biosensors
- Biomaterials
- Biomechanics
- Biomedical Informatics
- Drug & Gene Delivery Systems
- Lab-on-a-Chip Devices/Microsystems
- Medical Devices & Implant Science
- Modeling, Simulation and Analysis
- Nanotechnology
- Rehabilitation Engineering
- Surgical Tools & Techniques
- Telehealth
- Tissue Engineering
- Imaging Agents & Molecular Probes
- Image Displays
- Image Guided Therapies & Interventions
- Image Perception
- Image Processing
- Magnetic, Biomagnetic & Bioelectric Devices
- Magnetic Resonance Imaging & Spectroscopy
- Nuclear Medicine
- Optical Imaging & Spectroscopy
- Ultrasound and Acoustics
- X ray, Electron & Ion Beam

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Research Funding, Training and Career Development Opportunities at NIH

Your Program Officer

Your first line of information and assistance in seeking salary support from fellowships and career awards awarded by the NIH

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CRCNS: Watch NSF website for renewal of program

Collaborative Research in Computational Neuroscience (CRCNS)

Innovative Approaches to Science and Engineering Research on Brain Function

PROGRAM SOLICITATION
NSF 04-514
REPLACES DOCUMENT NSF 02-018



National Science Foundation
Directorate for Computer and Information Science and Engineering
Division of Information and Intelligent Systems
Directorate for Biological Sciences
Directorate for Social, Behavioral, and Economic Sciences
Directorate for Engineering
Directorate for Mathematical and Physical Sciences



National Institutes of Health
National Institute of Neurological Disorders and Stroke
National Institute of Mental Health
National Institute on Drug Abuse
National Institute on Deafness and Other Communication Disorders
National Institute on Alcohol Abuse and Alcoholism
National Institute on Aging
National Eye Institute
National Institute of Biomedical Imaging and Bioengineering
National Institute of Dental and Craniofacial Research

<http://www.nsf.gov/pubs/2004/nsf04514/nsf04514.htm>

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NIBIB Contact:

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- modeling, simulation, analysis, robotics and systems engineering technology development
- early stage technology development of neuroprosthesis and neuroengineering, robotics rehabilitation, virtual rehabilitation, and biomechanics of human movement
- intelligent hardware and software for the control of devices and the prediction of physiological signals and human behavior

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